

## ABSTRACT

~~The object of the present invention is to provide an~~ An ~~apparatus capable of measuring wavelength dispersion characteristic and other characteristics by using only a single fiber pair. In order to achieve said object, the apparatus according to the present invention includes~~ including a variable wavelength light source ~~[[12]]~~ for generating a variable wavelength light, ~~the wavelength of which is variable,~~ a first light modulator ~~[[15]]~~ for inputting into ~~[[the]]~~ a first optical fiber transmission line ~~[[32 the]]~~ a first incident light obtained by modulating the variable wavelength light by ~~[[the]]~~ a frequency of ~~[[the]]~~ an ~~electrical signals~~ signal inputted, a first ~~optical/electrical converter~~ ~~[[22]]~~ for converting ~~by the optical/electrical conversion process~~ the first ~~outgoing incident~~ light ~~having penetrated the first optical fiber transmission line 32,~~ a fixed wavelength light source ~~[[21]]~~ for generating a fixed wavelength light, ~~the wavelength of which is fixed,~~ a power source (signal source) ~~25~~ a signal source for generating a reference electrical signal ~~signals of given frequencies,~~ a second light modulator ~~[[23]]~~ for inputting in ~~[[the]]~~ a second optical fiber transmission line ~~[[34 the]]~~ a second incident light obtained by modulating the fixed wavelength light by ~~[[the]]~~ a frequency ~~[[fm]]~~ of the reference electrical signal and a second ~~optical/electrical converter~~ ~~[[16]]~~ for converting ~~by the optical/electrical conversion process~~ the second incident ~~outgoing~~ light ~~having penetrated the second optical fiber transmission line 34 and for outputting the electrical signal~~ into the first light modulator ~~[[15]].~~ ~~When the result of optical/electrical conversion of the first outgoing incident light and the reference electrical signals are available, it is possible to compute wavelength dispersion characteristic and other characteristics by comparing their phases.~~

Figure 1